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CHAPTER THREE

Primary Technology: Keep it Simple — The Grovelands Experience

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This chapter reports on a project which aimed to involve all the teachers in a primary school in implementing some technology tasks in their classrooms. The provision of ideas and resources by the coordinator for teachers, the lack of pressure on them to participate, and the involvement of parents proved to be very successful strategies

The School

Grovelands Primary School, situated in the southern part of the Perth Metropolitan area, is in a low socio-economic area consisting of Government housing estates. For a number of years the school was classified as a 'priority' school, and had just had this classification removed. In 1996 the school's population was 330 children in Years 3 to 7, placed in eleven classes, with twelve full-time teachers and one part-time teacher.

The Teachers

The school principal was keen for the teachers to begin to implement some aspects of technology education and was supportive of the plan and ideas of the coordinator. Other staff members were less enthusiastic. The teachers' industrial dispute of 1995 and the lack of parental support for school initiatives, had resulted in a school climate where teachers were not favourably disposed towards change, or projects were seen as extra work. With this in mind, the focus of the NPDP project was to provide teachers with technology tasks which were planned by the coordinator and could be done by the children, often out of school time. The coordinator noted that in this way, there was no pressure on fellow teachers to try and implement this program within their classrooms with their already overburdened timetables.

The coordinator was also Acting Deputy Principal at Grovelands during Terms 1 and 2 and had to include her coordination role in this project as part of her administration duties. In Terms 3 and 4, she had 40 minutes

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per week allocated for coordination. A budget of $1000 was allocated by the school to the project for 1996 — the first time any funding had been provided for technology, apart from some computer hardware and software.

Aims of the Program

The Principal stated that by the conclusion of the project she hoped all teachers at the school would have an awareness of the learning area of Technology and Enterprise, and that they would feel confident enough to implement some simple technology tasks in their classrooms.

The coordinator wanted teachers to start to include some technology tasks into their programs and also to begin to understand the structure of the Technology and Enterprise Student Outcome Statements, and how they could be used for planning, recording, assessing and reporting purposes.

The Program

The program prepared by the coordinator consisted of one project per term. All the children at the school were given information about each project, but it was not compulsory for them to take part. The projects were:

- Term 1: Making a gravity screw from recycled materials;
- Term 2: Building a steam roller;
- Term 3: Creating a ground craft powered by a rubber band; and
- Term 4: Designing a bin that would encourage children to put their rubbish in.

Two additional projects — construction of a haunted house and the design of a new Australian flag — were also undertaken and these will be discussed later in the chapter.

The implementation of the program required the coordinator to give the teachers some background knowledge about each of the projects, provide information hand-outs for the students, keep the momentum going through classroom visits to talk about the projects, and organise participation certificates for those students who completed a project.

Getting Started

The initial staff meeting to discuss the overall project did not arouse any noticeable interest in most of the teachers. The coordinator stressed that it was possible for them to have minimal involvement, as she would be doing all the planning and organising, but she would like them to discuss the projects with the children in their classes and encourage them to participate.

The visit by the project officer and facilitator to explain the overall NPDP Project, was reasonably well received, though it was apparent that a number of teachers knew little about this new learning area of Technology and Enterprise.

The Technology Task Ideas

The ideas for the technology tasks came from a number of sources, mainly art/craft books, which explained how to build simple toys; and from some technology resource books, such as Minton and Minton (1987), *Teaching Technology to Children.*

During the year ideas for further projects evolved from other learning areas, such as Social Studies (e.g. making a new Australian flag), problems noted around the school (e.g. need for a canteen sign) and from advertised competitions (e.g. Haunted House competition at Scitech Discovery Centre). These topics were well matched with Harriman (1996, p.147) who stated,

Finding interesting starting points for technology activities can motivate students while, at the same time, providing a focus for their thinking. These may in lude:

- students' interests . . .
- solving a real problem . . .
- external activity or events . . .

The Year in Review

Term 1

Term 1 saw the initiation of the overall project and much was achieved. Teachers were introduced to the Technology and Enterprise learning area through staff meetings, the 'gravity screw' project was planned, and all teachers and children received their information sheets explaining what had to be done. A newsletter was written to parents asking for

donations of items to be used for technology tasks, money from a raffle was used for some teacher resource books which were displayed in the staffroom, and a storeroom was designated for storage of technology materials.

As materials were donated they were sorted and set up in the technology storeroom where they were available for all teachers to access. Organising donated materials and keeping the storeroom in order was one of the on-going tasks for the coordinator throughout the year. A number of requests were made to local companies asking for materials such as plastic bottles, popsticks etc. These requests were all successful and resulted in a number of useful items being available for model building.

The 'gravity screw' project was enthusiastically attempted by a number of children and their constructions were displayed in the library. The local community newspaper became aware of the project and an article and photograph, featuring children from Grovelands with their models, gave the school some very positive publicity. One such model is pictured in Figure 1.

Figure 1: An example of a gravity screw

Term 2

The project for Term 2 was to build a steam roller, The teachers and children were given an instruction sheet which outlined one construction method and suggested the materials to use. Again there was a good response from the children and a display of models was presented at the school assembly and later set up in the library. Each teacher was given a technology resource book as an incentive to try some simple activities within their classrooms. A professional development session by Arborland Consultancy, which focused on how technology was used in the Aboriginal culture, was organised by the coordinator and attended by all teachers. This was well received. The coordinator also wrote a program for the Water Corporation and this initiative won a computer for the school.

The 'Haunted House' competition, organised by Scitech Discovery Centre, was advertised at the school and children from one Year 7 class decided to enter. Their class entry was judged as joint winner and Grovelands became the proud recipient of an IBM computer, with a range of accessories. The winning group was featured in *The West Australian* newspaper which stated the model was "complete with graveyard, spooky lights and strange noises". The model house is shown in Figure 2.

Figure 2: Model of a haunted house

Term 3

The project for Term 3 was to construct a rubber-band powered car. Again the teachers and children were provided with ideas on how to build this model, along with possible materials. However, this was just one of a number of projects which developed during this term. Staff meetings, which were held fortnightly, resulted in two other whole-school projects being undertaken. The first was to design a new Australian flag. This came about through work related to the Olympic Games and teachers readily saw the links to their current events programs and Social Studies work, plus integrating art skills in the final designing phase. Each class was given a sheet for the initial designing and children were asked to state why their design was the best. This was a development from the earlier projects, which had been quite structured. With the flag task the children had to consider what makes an interesting flag, what is the purpose of having a flag, and whether their flag met the criteria of being Australian. Interest in the flags was such that a number of classes selected the best design from among their members and then produced a class flag. Figure 3 shows the proforma for students to report on the flag project.

By this time the teachers had begun to show considerable interest in technology tasks. This appears to have been stirred by the children's enthusiasm and through parental support for the project work, much of which had been done at home. It was decided to have a monthly project, with each of the junior and senior classes working on different tasks. The coordinator decided on the projects and prepared the handouts for the children, then the teachers implemented the ideas in their classrooms. The coordinator believed that the success of these projects was because there was no preparation required by the teachers.

During this term a 'clubs' time was scheduled for an hour on Friday afternoons. Each teacher was a club leader and organised a range of different activities, many of which were Technology and Enterprise focused. Children undertook bridge building and other designing tasks. One group designed and made blankets which were donated to the Salvation Army. This venture was so successful that it was continued throughout Term 4, and was planned for at least two terms in 1997.

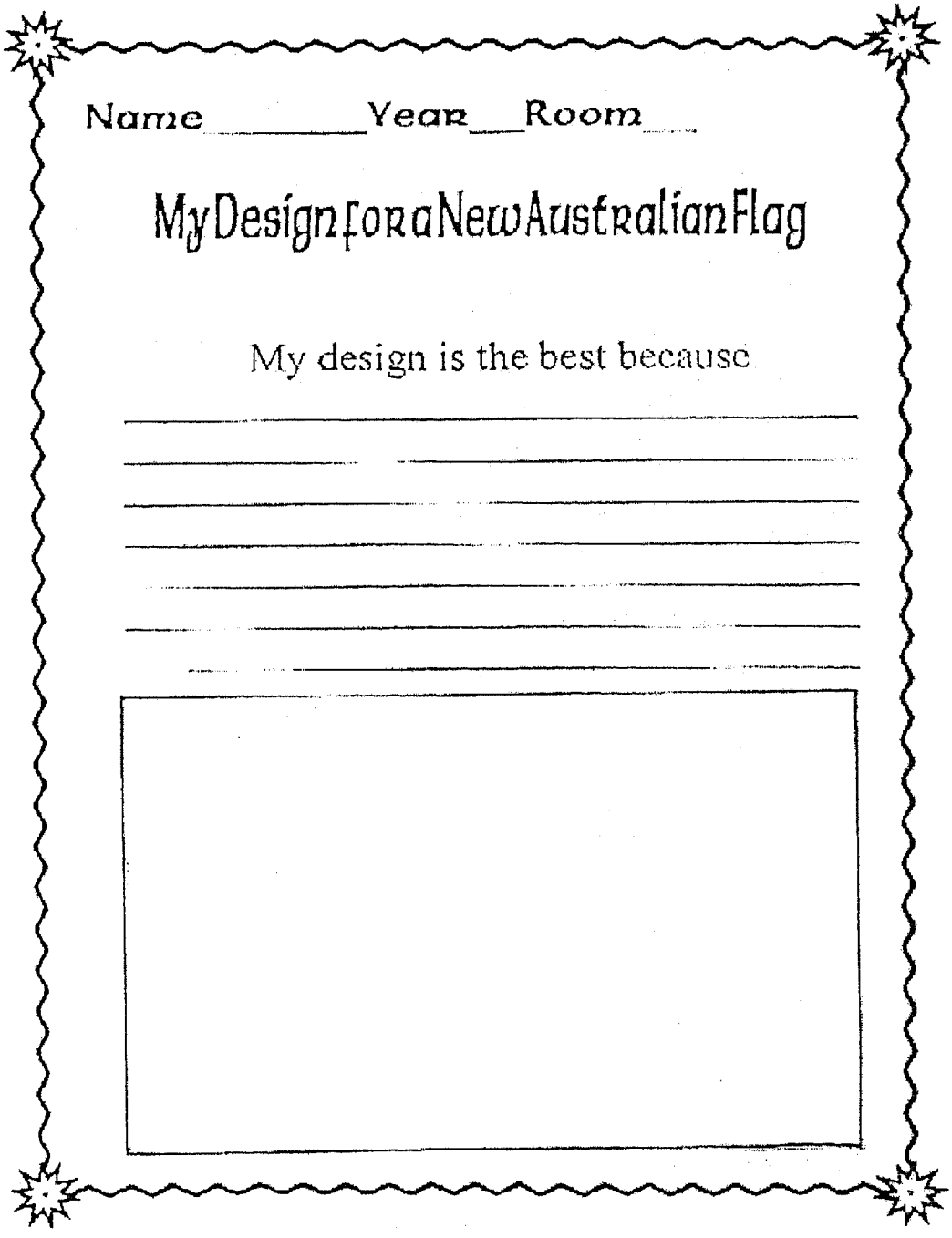
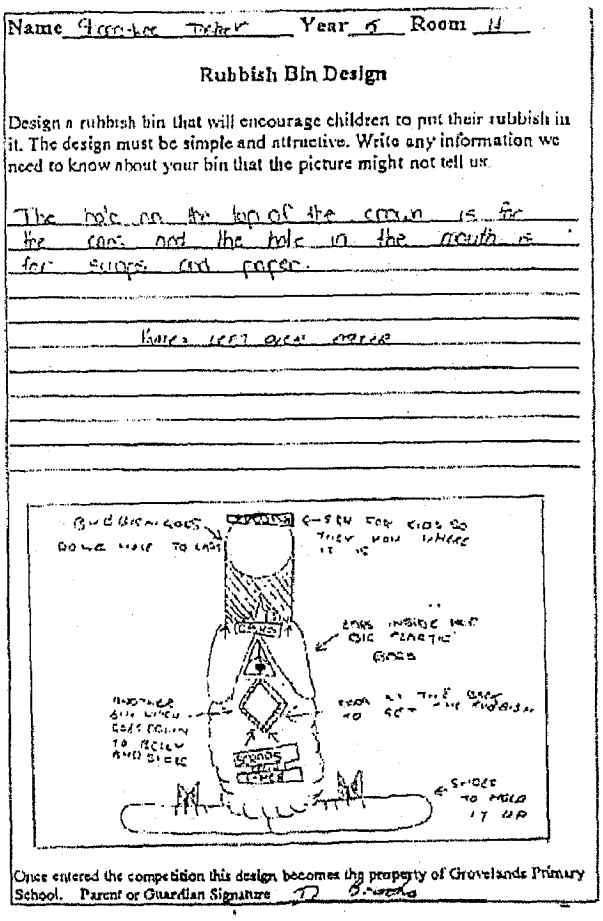


Figure 3: Proforma for reporting on flag design

Term 4

The major project for Term 4 was to design a rubbish bin that would encourage children to place their refuse in it. This again was a whole-school project. A wonderful incentive for this project was that funds were allocated to have the winning design professionally built. The aim was for the children to see that their ideas were of value and could actually be implemented.

Each year level was also given a different project to complete, in addition to the rubbish bin project, as part of Education Week activities. One of the worksheets is shown in Figure 4.



Name _____ Year 6 Room 11

Rubbish Bin Design

Design a rubbish bin that will encourage children to put their rubbish in it. The design must be simple and attractive. Write any information we need to know about your bin that the picture might not tell us.

The hole on the top of the can is for the can and the hole in the mouth is for cups and paper.

Once entered the competition this design becomes the property of Grovelands Primary School. Parent or Guardian Signature

Figure 4: Example of worksheet

Discussion

The technology and enterprise project at Grovelands, which began in a climate of disinterest, developed throughout the year so that at the conclusion a number of teachers were involved and enthusiastic about including technology tasks as part of their classroom activities. The coordinator believes that the project was a success because teachers were treated like professionals and given inservicing and resourcing whilst being shown different ideas, working across the term with the projects.

Apart from the inclusion of technology tasks, either independently by the children, or under the guidance and direction of the teachers within their programs, the Technology and Enterprise Student Outcome Statements were discussed at staff meetings and the coordinator prepared record sheets, based on the Statements, for each teacher to use. These sheets showed each level and the matching strands and substrands, and gave teachers one way to record a child's progress in this learning area. It was hoped that these could be passed on to teachers the following year and thus a child's record would be ongoing.

Conclusion

The impetus to introduce some aspects of the Technology and Enterprise Student Outcome Statements into the curriculum at Grovelands was provided by the coordinator, whose personal expertise, enthusiasm and hard work resulted in a number of extremely interesting projects being completed. The process of providing teachers with the ideas and the materials, without imposing extra work or decision-making on them, proved to be a formula for success.

The coordinator has recently been selected by the Education Department of Western Australia to participate in the Technology in Schools project, *Innovations in the Classroom* in 1997. As an innovative teacher she will be granted $2000 for the implementation of a technology program.

Grovelands has made a start in implementing activities relevant to the Technology and Enterprise Learning Area. Teachers have ideas for projects which they have seen handled well by some children, so they realise the types of materials and equipment needed for construction activities and have commenced some early recording of children's abilities. The children have experienced some opportunities to try new and different project work, often in the home situation, which has had the effect of arousing some parental interest in school matters.

The initiatives which were undertaken in 1996 will provide the starting points for a broader and more in-depth development of the Technology and Enterprise learning area at Grovelands in the future. The simple approach taken here is a good example of how teachers can be introduced to new ideas in a way that is non-threatening and supportive.

References

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